HOUSEHOLDS' WILLINGNESS TO PAY AND ASSOCIATED FACTORS FOR THE NUTRITION SERVICES PROVIDED TO WOMEN STAYING AT MATERNITY WAITING HOMES IN EAST WOLLEGA, WESTERN ETHIOPIA

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ABSTRACT

BACKGROUND: In Ethiopia, most maternity waiting homes lack government funding and rely on community contributions. However, the willingness of households to pay for nutrition services has not been widely studied. This study aimed to determine the maximum households' willingness to pay for nutrition services at maternity waiting homes and its associated factors in the East Wollega Zone of Oromia National Regional State, Ethiopia.

METHODOLOGY: A community-based cross-sectional study using a double-bounded dichotomous choice contingent valuation method was conducted on 845 households. Data were entered using Epi-Data version 3.1 and analyzed with SPSS for Windows version 20. Binary and multivariable logistic regression analyses were performed. Explanatory variables with p-values less than 0.05 at a 95% confidence level were reported as significantly associated with the outcome variable using an adjusted odds ratio and confidence interval.

RESULTS: The annual median maximum willingness to pay was 15 ETB (US$0.55) per household. Marital status (AOR = 3.533, 95% CI = 1.007-12.39, p-value = 0.05) and average monthly income (AOR = 3.287, 95% CI = 1.194-9.049, p-value = 0.04) were significant factors. Additionally, distance from the health facility (AOR = 3.64, 95% CI = 1.256-10.55, p-value = 0.03), availability of food (AOR = 3.714, 95% CI = 1.331-10.364, p-value = 0.05), sufficient bedding (AOR = 5.353, 95% CI = 2.207-13.010, p-value = 0.001), and cooking utensils (AOR = 4.044, 95% CI = 1.353-12.088, p-value = 0.05) at the housing facility were predictors.

CONCLUSION AND RECOMMENDATION: The households' maximum willingness to pay for nutrition services at maternity waiting homes is relatively high. Demographic, socioeconomic, and institutional factors influenced households' willingness to pay. Health facility managers should ensure necessary utensils are available at maternity waiting homes to sustain the provision and utilization of services.

KEYWORDS: maternity waiting home, willingness to pay, associated factors, Ethiopia

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INTRODUCTION

The chances of women dying as a result of complications during pregnancy, delivery, or the postpartum period remain high in many parts of the world. Lack of access to obstetric services is a primary cause of the high incidence of maternal and newborn deaths. Long distances, poor transport facilities, and inadequate distribution of healthcare facilities contribute to the low utilization of healthcare services in many rural districts in low-income countries.[1–5] Studies indicate that delay number one accounts for 33% of maternal mortality in Ethiopia, while delays number two and three account for 32% and 29% of maternal deaths, respectively.[26]

Maternity waiting homes (MWHs) are residential facilities located near qualified medical centers where pregnant women can wait to give birth. These home-like environments could play a key role in ensuring access to comprehensive maternity care if communities are willing to help sustain them. The aim of the MWH is to improve accessibility and reduce morbidity and mortality for mothers and neonates should complications arise.[4,7] To improve the sustainability of these community-owned and managed shelters, contributions, either in the form of individual donations or an annual community contribution, have the potential to support the long-term financial viability of the shelters.[8–10]

In Ethiopia, many MWHs were built with community support, which usually includes financial contributions for the services provided to mothers staying at these waiting homes. Funding is required to lower other barriers to utilization, such as food provision. Most (86%) of the MWHs had no budget allocated from government funds, resulting in a shortage of revenue for the long-term sustainability of MWH services.[11–13]

Household contributions are necessary to improve the sustainability of these community-owned and managed shelters; however, it is unknown how much they might be willing to contribute and what factors determine their willingness to pay for the services. Shortages of food, kitchen utensils, and fuel, as well as a lack of basic social and healthcare services such as adequate bedding, water, and sanitary services, and lack of visits to mothers staying at an MWH, are some of the barriers to access and utilization.[4,6,9,11-13]

High-risk and pregnant women from remote areas visit and stay at an MWH in their final weeks of pregnancy (about 15 days prior) and for some days after delivery.[6,25] Although the expected amount of money to be paid by households annually is 10 ETB, the actual amount varies from place to place or region to region.

Since there is no predetermined tariff defining the average amount households should pay for the service, the level of household involvement and income collected thus far is insufficient. Furthermore, because the contribution is optional, some households may decide to make the payment while others may not, raising doubts about the program's long-term viability. To establish evidence for tariff setting and address the factors contributing to the unwillingness to pay for the service, it is crucial to ascertain the average maximum households' willingness to pay (MWTP) for the service and its associated elements.

METHODS

Study Area and Period

The study was conducted in the East Wollega zone between August and September of 2018. The zone, located in western Ethiopia, is part of the Oromia Regional State and is situated 333 km from Addis Ababa, the capital city of Ethiopia. There are seventeen woredas in the zone, with community involvement and provision of nutritional services in all woredas. However, only maternity waiting homes in eleven woredas were functional at the time of the study (East Wollega Zonal Health Department, 2018).

Study Design and Source Population

A community-based cross-sectional study design was employed, with all households in the zone as the source population. The study population consisted of all households in the selected kebeles.

Sample Size and Sampling Procedures

The sample size was determined using a single population proportion formula (n = (Zx/2)^2 p (1-p)/d^2), taking a proportion (p) of 50% due to the lack of similar studies[15]. The maximum possible sample size was 845, including a 10% non-response rate and multiplying by a design effect of two. Nine woredas and thirty-two kebeles were randomly selected using the lottery method, and the households were proportionally allocated to their respective kebeles[16] (Table 1).

Table 1: Sampling procedures of the study areas and the study participants in East wollega Zone, Oromia regional state, Ethiopia, 2018.

PName of randomly selected woredas	B/Boshe	W/Hagalo	W/Tuqa	S/Sire	L/Dulacha	J/Arjo	G/Gida	G/Sayo	Diga	Total
Proportionally allocated numbers of kebeles	3	3	3	3	4	4	4	4	4	32
Proportionally allocated numbers of households	65	83	82	132	77	149	105	69	83	845

Data Collection Tools and Techniques

Data were collected using a face-to-face interviewer-administered questionnaire. The data collectors offered a bidding game to the household representative (husband or spouse) since they typically decide on the household budget. To determine their willingness to pay, the initial bidding price was the currently proposed price of 10 ETB (East Wollega Zonal Health Department, 2018). Depending on the respondents' response to the initial price, 2 ETB was added or subtracted in two incremental or detrimental stages, respectively, before asking for the maximum willingness to pay (WTP Max). The bidding game was conducted as follows (Fig. 1).

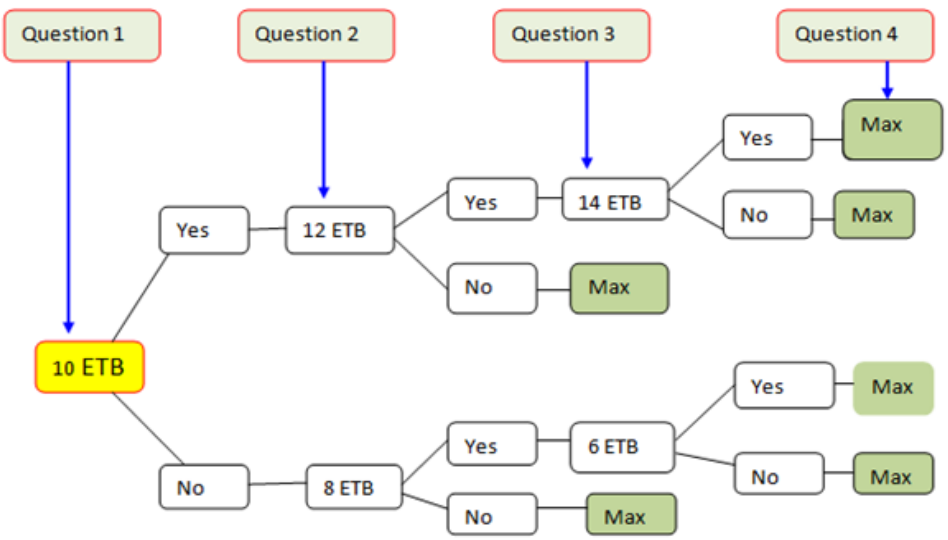

Figure 1: Sequence of willingness to pay questions depending on respondents' response to each price bid, 2018.

Data Analysis

Data were entered using Epi-Data version 3.1 and analyzed using SPSS for Windows version 20. Frequency distribution of dependent and independent variables was performed. Independent variables with a p-value less than 0.25 in bi-variable analysis were considered candidate variables and entered into multivariable logistic regression analysis to check associations with the outcome variable. The association between independent and dependent variables was presented using adjusted odds ratios with 95% confidence intervals.

Data Quality Assurance

The questionnaire was adapted and translated into the local language (Afan Oromo). Training was provided for data collectors and supervisors on data collection tools. A pretest was conducted on 15% of the sample size before the actual data collection period. Supervisors checked the completeness of the questionnaires immediately during data collection. Data were entered and double-entered into Epi-Data to check for errors during data entry.

RESULTS

Socio-Demographic Characteristics of the Respondents

Out of 845 households included in the study, 830 responded to the questions, resulting in a 98% response rate. More than half of the respondents (54.7%) were young female household heads with a mean age of 30.58 years (SD ± 8.6). The majority of the participants (83.7%) were married, and the average household family size was 5.07 (SD ± 1.95) (Table 2).

Table 2: Socio-demographic characteristic of the respondents in East Wollega Zone, Oromia regional sate, Ethiopia, 2018

Variables	WTP for the nutrition service		Total
	WTP <10 ETB	WTP>= 10ETB	
Sex			
Male	17(36.2)	359(45.8)	376
Female	30(63.8)	424(54.2)	454
Age			
18-24 years	19(40.4)	159 (20.3)	178
25-34 years	15(31.9)	392 (50.1)	407
35-44 years	4(8.5)	190(24.3)	194
45 years and above	9(19.1)	42 (5.4)	51
Marital status			
Married	34(72.3)	661(84.4)	695
Single	13(27.7)	122(15.6)	135
Ethnicity			
Oromo	43(91.5)	726(92.7)	769
Amhara	4(8.5)	57(7.3)	61
Religion			
Orthodox	17(36.2)	253(32.3)	270
Muslim	9(19.1)	99(12.6)	108
Protestant	21(44.7)	431(55)	452
Educational status			
Illiterate	30(63.8)	290(37)	320
Can read and write	7(14.9)	70(8.9)	77
Elementary (1-8)	9(19.1)	305(39)	314
Secondary(9-12)	0(0)	78(10)	78
College and above	1(2.1)	40(5.1)	41
Occupational status			
Farmer	23(48.9)	459(58.6)	482
Student	0(0)	9(1.1)	9
House wife	15(31.9)	116(14.8)	131
Government Employer	2(4.3)	78(10)	80
Merchant	0(0)	79(10.1)	79
Daily laborer	7(14.9)	42(5.4)	49
Average monthly income			
Less than 200 ETB	7(14.9)	92(11.7)	99
200-400 ETB	13(27.7)	149(19)	162
401-692 ETB	18(38.3)	191(24.4)	209
Greater than 692 ETB	9(19.1)	351(44.8)	360
Distance of the HHs from the health facility			
Less than 5KM	40(85.1)	553(70.6)	593
Greater or equal to 5km	7(14.9)	230(29.4)	237

Households' Willingness to Pay (WTP) for the Nutrition Service Provided to Women Staying at MWH

Among 830 respondents, 783 (94.3%) were willing to pay 10 ETB or more, while only 47 (5.7%) were willing to pay less than 10 ETB, with a minimum of 5 ETB and a maximum of 8 ETB for the service. The households' maximum willingness to pay for the nutrition service was 15 ETB (0.55 USD) per year per household. About 45.2% of the households were willing to pay below the median amount, and 43% were willing to pay above the median amount (Figure 2).

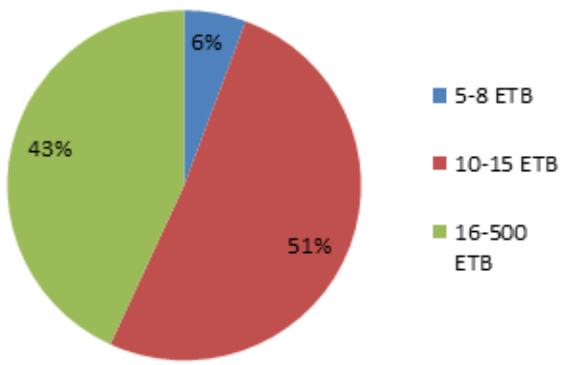

Figure 2: Percentage of respondents willing to pay a certain range for the nutrition service (Exchange rate: US$1=27.471 ETB, source (18).

Determinants of Households' Willingness to Pay for the Nutrition Service

The MWTP of a group of respondents with a mean age of 52.78 years (SD ± 8.09) was nearly 94% lower than the MWTP of a group with a mean age of 28.42 years (SD ± 2.56). On the other hand, respondents who were ever married had a higher willingness to pay (AOR = 3.533, 95% CI = 1.007-12.39) than their unmarried counterparts. Household heads with a college or above education level had a lower willingness to pay (AOR = 0.346, 95% CI = 0.14-0.857) compared to illiterate counterparts. Respondents who were housewives (AOR = 2.625, 95% CI = 1.075-6.413) and daily laborers (AOR = 3.593, 95% CI = 1.068-12.089) had a higher willingness to pay than farmers.

Respondents with a median monthly income of 1000 ETB (AOR = 3.287, 95% CI = 1.194-9.049) were more likely to have a higher WTP for the service compared to those with a median monthly income of 100 ETB. Respondents living closer to the health facility (less than 5 km) (AOR = 3.64, 95% CI = 1.256-10.55) had a higher willingness to pay than those living farther away (greater than 5 km). Furthermore, WTP was positively affected by the availability of quality food (AOR = 3.714, 95% CI = 1.331-10.364), beddings (AOR = 5.353, 95% CI = 2.207-13.010), and cooking facilities (AOR = 4.044, 95% CI = 1.353-12.088) at a MWH (Table 3).

Table 3: Predictors of WTP for the nutrition provided to women staying at a MWH in East Wollega Zone, Oromia regional state, Ethiopia, 2018.

Variables		WTP for the nutrition servic		OR and 95% CI	
		<10ETB n=47(%)	<10ETB n=783(%)	COR(95%CI)	AOR(95%CI)
Age					
18-24 years		19(40.4)	159(20.3)	1	
25-34 years		15(31.9)	392(50.1)	0.558(0.235-1.322)	0.368(0.115-1.74)
35-44 years		4(8.5)	190(24.3)	0.179(0.074-0.433)	0.09(0.027-0.3)***
45 years and above		9(19.1)	42 (5.4)	0.098(0.029-0.334)	0.06(0.013-0.25)***
Marital status					
Never married		13(27.7)	122(15.6)	1	
Ever married		34(72.3)	661(84.4)	2.072(1.036-4.039)	3.53(1.007-12.39)*
Educational status					
Illiterate		30(63.8)	290(37)	1	
Can read and write		7(14.9)	70(8.9)	0.273(0.185-0.623)	0.510(0.167-1.554)
Elementary (1-8)		9(19.1)	305(39)	0.285(0.133-0.611)	0.108(0.004-2.945)
Secondary(9-12)		0(0)	78(10)	0.351(0.132-0.597)	0.284(0.175-1.05)
College and above		1(2.1)	40(5.1)	0.242(0.032-1.82)	0.346(0.140-0.86)*
Occupational status					
Farmer		23(48.9)	459(58.6)	1	
House wife		15(31.9)	116(14.8)	2.581(1.305-5.102)	2.63(1.08-6.4)*
Daily laborer		7(14.9)	42(5.4)	3.33(1.35-8.21)	3.59(1.1-12.1)*
Average monthly income					
Less than 200 ETB		7(14.9)	92(11.7)	1	
200-400 ETB		13(27.7)	149(19)	2.967(1.076-8.18)	1.307(0.34-5.020)
401-692 ETB		18(38.3)	191(24.4)	3.403(1.424-8.132)	2.55(0.828-7.863)
Greater than 692 ETB		9(19.1)	351(44.8)	3.675(1.62-8.339)	3.29(1.194-9.049)*
Distance of the HH from the health facility					
Less than 5KM		40(85.1)	553(70.6)	2.377(1.049-5.383)	3.6 (1.256-10.557)*
Greater or equal to 5 KM		7(14.9)	230(29.4)	1.00	
Availability of food at a MWH	Yes	40(85.1)	533(68.1)	2.68(1.184-6.067)	3.7(1.331-10.364)*
	No	7(14.9)	250(31.9)	1.00	
Availability of water at a MWH	Yes	41(87.2)	570(72.8)	2.554(1.069-6.101)	1.79(0.551-5.820)
	No	6(12.8)	213(27.2)	1.00	
Availability of beddings at a MWH	Yes	34(72.3)	415(53)	2.319(1.205-4.62)	5.35(2.21-13)***
	No	13(27.7)	368(47)	1.00	
Availability of cooking facilities at a MWH	Yes	31(66)	433(55.3)	1.566(0.843-2.91)	4.04(1.4-12.1)*
	No	16(34)	350(44.7)	1	
Effect of peers	Yes	14(29.8)	421(53.8)	1.00	
	No	33(70.2)	362(46.2)	2.741(1.444-5.203)	2.7(1.204-6.011)*
Affordability	Yes	29(61.7)	287(36.7)	2.784(1.519-5.103)	3.61(0.748-17.382)
	No	18(38.3)	496(63.3)	1.00	
Service quality	Yes	45(95.7)	694(88.6)	2.885(0.688-12.1)	1.1 (0.19-6.112)
	No	2(4.3)	89(11.4)	1.00	
Perceiving as it is the government's responsibility	Yes	17(36.2)	464(59.3)	1.00	
	No	30(83)	319(40.7)	2.567(1.392-4.733)	3.6 (1.7-7.95)***
Availability of electric power at the MWH	Yes	45(95.7)	667(85.2)	3.913(0.936-16.35)	3.61(0.748-17.382)
	No	2(4.3)	116(14.8)	1.00	
Availability of kitchen at a MWH	Yes	41(87.2)	563(71.9)	2.67(1.118-6.378)	1.25(0.406-3.822)
	No	6(12.8)	220(28.1)	1.00	
Availability of adequate firewood at a MWH	Yes	39(83)	516(65.9)	2.523(1.162-5.475)	2.52(0.933-6.78)
	No	8(17)	267(34.1)	1.00	

*p-value<0.05, **p-value < 0.01, ***p-value<0.001, 1=reference

DISCUSION

The majority of respondents were willing to pay for the services, with their maximum willingness to pay (WTP) per household per year being 15 ETB (~US$0.55). This figure is higher than the amount the government has set, indicating that respondents are willing to pay more than the current rate. However, the nutrition service program at MWHs suffers from a revenue shortage.

Older household heads demonstrated a higher willingness to pay compared to their younger counterparts. This finding aligns with studies conducted by WHO and in Liberia.[6,19] A possible explanation is that older female household heads, having experienced more births and living in rural areas, might have encountered nutrition service delivery at health facilities, which are primarily located in towns. Similarly, in line with studies in Ethiopia,[6,21] respondents who were ever married were about 3.5 times more likely to be willing to pay for the service than those who were never married. This could be due to the maternity experience of married women, who are more likely to have utilized and benefited from nutrition services at MWHs.

Respondents with a college education or higher had a 65.4% lower maximum willingness to pay compared to illiterate respondents. This finding is consistent with a study conducted in Ethiopia.20 The lower willingness to pay among more educated respondents may be due to their perception of higher-risk maternity care services. Educated individuals might also perceive the quality of such services differently.

Income was a significant determinant of WTP. Those with a median monthly income of 1000 ETB were nearly three times more likely to be willing to pay above the current price compared to those with a median monthly income of 100 ETB. This finding aligns with economic theory, which suggests that higher income increases willingness to pay for normal goods. It is also consistent with empirical studies conducted in Ethiopia.[20] Respondents living less than 5 km from a health facility were 3.6 times more likely to have a higher WTP than those living more than 5 km away. This suggests that households farther from health facilities may have less awareness of the service's importance. This finding is supported by studies conducted in China and Ethiopia.[22,23]

Respondents' perceptions of the quality of nutrition services (e.g., food, bedding, and cooking facilities) at MWHs also influenced their WTP. Households that believed there were adequate food, bedding, and cooking facilities at the MWH were more likely to be willing to pay. This is consistent with findings from a study conducted in the Netherlands.[24]

CONCLUSION

This study shows that households are willing to pay for nutrition services, suggesting that the government could increase the fee charged, as the households' maximum willingness to pay exceeds the current membership fee. Demographic, socioeconomic, and institutional factors affect households' maximum willingness to pay (MWTP). Additionally, perceptions of service quality also influence WTP for the service.

RECOMMENDATIONS

As the program is monitored and evaluated by the Oromia Health Bureau, the Zonal Health Department, and the Woreda Health Offices, they should collaborate to revise the fee to sustain service provision and enhance functionality at all levels of the health facility. Health facility governing bodies should ensure the availability of food items, cooking utensils, and enough beds at a Maternity Waiting Home (MWH), as these factors affect households' willingness to pay.

DECLARATIONS

Limitation of the study

This is study is based on the respondents' stated preferences to the services which does not mean the households are committed

Abbreviations

AOR: Adjusted Odd Ratio,

DBDC: Double Bounded Dichotomous,

CVM: Contingent Valuation Method,
ETB: Ethiopian Birr,
FMOH: Federal Ministry of Health,
HC: Health Center,
HDA: Health Development Army,
HEW: Health Extension Workers,
HF: Health Facility,
HH: Household,
JU: Jimma University,
MNCH: Maternal Neonatal and child health services,
MWH: Maternity Waiting Home,
NGO: Non-governmental Organization,
OR: Odd Ratio,
SD: Standard Deviation,
SMAGs: Safe Motherhood Action Groups,
SPSS: Statistical Package for the Social Sciences,
USD: United States Dollar,
WHO: World Health Organisation,
WTP: Willingness to Pay

Ethical Approval

The study was approved by Jimma University ethical review board. Permission to collect data was obtained from east Wollega zone health administration office.

Consent for Publication

Not applicable for this research

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Funding

Not applicable

Consent to Participate

A free informed consent written or verbal was obtained from each individual participant at the start of the study.

Authors' Contribution

AE, participated in the conception, design, acquisition and analysis and the interpretation of the work. TD, supervised all the activities and drafted the manuscript. GJ, substantively revised and prepared the final draft of the manuscript. And all authors read and approved the final version of the manuscript and agreed on the submission of the manuscript to this journal.

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